

Markus Gilch, et al
Serial No.: 10/804,819
Amdt. dated September 21, 2005
Reply to Office Action of 06/14/05

ARGUMENTS/REMARKS

The disclosure was objected to requesting to eliminate the last paragraph on page 1 for the reasons stated in the Office Action. The matter has already been attended to in a previously filed Preliminary Amendment, the same amendment in which the new claims 16-30 were presented. If, somehow portions of the Preliminary Amendment were lost, applicants will resubmit the Preliminary Amendment.

Claims 16, 21, 23 and 27 were rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Steinmann (USP 4,508,021) or Anderson USP (3,028,800) or DE 4100817 on the grounds set forth in the Office Action.

Claims 16, 21, 23 and 27 were rejected under 35 USC 103(a) as unpatentable over Steinmann (USP 4,508,021) or Anderson (USP 3,028,800) or DE 4100817 for the reasons stated in the Office Action.

Claims 17, 18, 22-26 and 28-30 were rejected under 35 USC 103(a) as unpatentable over Steinmann (USP 4,508,021) or Anderson (USP 3,028,800) or DE 4100817 either alone or in view of the admitted prior art (page 12, lines 6-8 of present specification) and

further in view of any one of Eguchi (US 4,437,391), Fukui (US 4,352,321), or Kettner (US 5,971,287) or Baruschke (US 5,934,987) on the grounds set forth in the Office Action.

Claims 19 and 20 were rejected under 35 USC 103(a) as unpatentable over any of the prior art as applied to claim 18, and further in view of Passur (USP 2,224,407) for the reasons stated in the Office Action.

The claims have been amended to distinguish over the teachings of the cited art, considered individually or in combination, and are believed to have allowable subject matter in view of the following argument.

Amended method claim 16 includes subject matter of claims 17, and 22. The amended device claim 27 includes subject matter of claims 28, 29, and 30. Accordingly claims 17, 22, 28, 29 and 30 have been cancelled in view of the inclusion of their subject matter in the respective base claims.

Amended claim 16 and amended claim 27 are believed to set forth patentable subject matter in view of the following discussion of the cited art.

Steinmann (US 4,508,021) discloses a ventilating arrangement for a vehicle. Steinmann considers an arrangement with an air passage having an inlet 5 and an outlet 6. Within the air passage a heat exchanger is provided. Downstream and upstream of the heat exchanger there is a pressure meter 11 measuring the

pressure drop across the heat exchanger (please compare column 3, lines 64 to 66).

The approach for regulating the airflow into the vehicle is different from the method according to the present invention. As recited in claim 16 and 27, the employed sensor is an air mass flow meter measuring the mass of the air crossing a cross-sectional area per unit of time. The usual units for the values measured by the air mass flow meter are for example kilogram/hour.

Taking the temperature and density of the air into account, the mass of the streaming air is a physical entity completely different from the pressure drop as measured by Steinmann.

Please note that the German term "Luftmassensensor" as filed with the German application was translated as air mass flow rate sensor. This translation is in principal correct because the air mass of the flowing air is measured. The current claims refer to a mass air flow meter or MAF meter as it is usually called in English.

Anderson (US 3,028,800) refers to air controllers for motor vehicles. Anderson describes a speed control circuit sensitive to airflow conditions in order to operate an electrically controlled blower. In order to regulate the blower, a vane 34 is provided in the inlet. The incoming air is propelled by the blower and determines the position of the vane 34. The position of vane depends on the dynamic pressure and on the heat level of

air which passes through the heat exchanger (compare column 3, lines 38-42). Again Anderson does not suggest one to employ the measured mass (for example in kilogram) for controlling the incoming air stream.

DE 41 00 817 A1 (an English abstract is attached for your information) also relies on the pressure drop between the incoming air and the air in the vehicle cabin (please compare abstract). Again this approach relies on the pressure drop to solve the problem of regulation the incoming airflow.

The device and the method as recited in the claims is therefore new.

The Office Action refers to the following sentence of the specification:

"The use of air mass flow rate sensors is known in the field of motor vehicle technology from measuring the suck in fresh air in the intake track."

It is clear that the control of the combustion engine requires a very specific control of the air stream coming through the intake track to the cylinder. In order to control the combustion of fuel in the cylinder it is necessary to know the mass of the air taking part in the combustion. Each cylinder has a volume of a few hundred cm³.

The use of a mass air flow sensor in the intake track of the combustion engine does not make this product to a "off-the-shelf". One aspect of the claimed invention is that it is of great advantage to measure no longer the pressure difference in order to obtain a speed sensitive regulation of the incoming air but rather to refer to the mass of the air coming into the vehicle compartment. This kind of regulation avoids the usual problems of temperature and pressure differences in the known regulations.

Kettner et al (US 5,971,287) describe a method and a system for regulating a mixed air stream and a heating/air-conditioning unit for a motor vehicle. This document does not address a speed sensitive air control of the incoming air streams.

Maruschke et al (US 5,934,987) refers to the control of air conduction in a vehicle. Again this document addresses the problems of temperature, moisture and pollution sensors. This document does not discuss a speed sensitive control of the incoming air. Essentially the same applies for US 4,437,391.

US 2,224,407 deals with the problem of temperature control of two mixed air streams.

As already mentioned above, the invention deals with the problem to provide a method and a device for avoiding the disadvantages of a speed sensitive air control.

According to the present invention, it is suitable to rely on the mass of the incoming air. This quantity may be easily measured and does not vary with the temperature or a pressure drop taking place in the inlet device.

In particular the method and the device according to the present invention make it possible to have a speed sensitive control for an mixed air flow. It is possible to control the combined air-flows into the vehicle. All the approaches in the prior art for a speed sensitive control of the incoming air did not refer to the re-circulated air because the flow of the re-circulated air has a different pressure and a different temperature than the incoming airflow. It is, therefore, very difficult to establish a precise control for a mixed air-stream based on pressure differences. The mass air flow meter in contrast is independent of these influences and allows a precise control also for the mixture of two air-flows having different characteristics. This approach was not suggested by the prior art documents.

With respect to the objections raised to the specification, the specification has already been amended to take care of the formal aspects regarding the numbering of the claims, as noted above.

In the event there are further issues remaining in any respect the Examiner is respectfully requested to telephone attorney to reach agreement to expedite issuance of this application.

Applicants respectfully request that a timely Notice of Allowance should be issued in this case.

Since the present claims set forth the present invention patentable and distinctly, and are not taught by the cited art either taken alone or in combination, this amendment is believed to place this case in condition for allowance and the Examiner is respectfully requested to reconsider the matter, enter this amendment, and to allow all of the claims in this case.

Respectfully submitted

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CERTIFICATE OF MAILING UNDER 37 CFR SECTION 1.8(a)

I hereby certify that the accompanying Amendment is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria VA 22313-1450, on September 21, 2005.

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